

REMARKS/ARGUMENTS

This application has been reviewed in light of the Office Action dated June 13, 2005. Claims 5, 6, and 15-23 are pending, with Claims 16 and 20 in independent form. Independent Claims 4 and 14 have been cancelled by this amendment, without prejudice or disclaimer of the subject matter presented therein, and have been replaced with new Claims 16 and 20, respectively.

As will be discussed below, Claims 16 and 20 include a feature pertaining to a first and second type of edge pixel. Other than this feature, Applicants note that the differences between the newly added independent Claims 16 and 20 and their cancelled counterpart Claims 4 and 14, respectively, affect matters of form only, and, accordingly, the scope of protection previously provided by cancelled claims 4 and 14 has not been narrowed by new Claims 16 and 20, respectively.

Dependent Claims 17-19 and 21-23 have been added by this amendment to provide Applicants with a more complete scope of protection. Claims 5 and 6 have been amended to depend from Claim 16 instead of cancelled Claim 4, and Claim 15 has been amended to depend from Claim 20 instead of cancelled Claim 14. Applicants note that the change in Claim 15 of "digital pixel values" to "--toner consumption values--" affects matters of form only and does not, in any way, narrow the scope of this claim. Favorable reconsideration is requested.

As an initial matter, Applicants note that, unknowingly to them, the PTO-1449 form from the Information Disclosure Statement ("IDS") submitted on June 20, 2005, was submitted after the June 13, 2005 mailing date of the currently outstanding final Office Action. Accordingly, Applicants respectfully request that the references cited by such PTO-1449 form be considered along with the Request for Continued Examination ("RCE") submitted herewith and that the PTO-1449 form be initialed and returned to Applicants. Further, in light of Applicants' filing of a RCE, it is requested that no fee be charged for the consideration of the June 20, 2005 IDS.

The Office Action includes a rejection of all of the then-pending claims under 35 U.S.C. § 102(b) as allegedly anticipated by U.S. Patent No. 5,349,377 (Gilliland et al.). Applicants respectfully submit that the newly added

independent Claims 16 and 20, together with the dependent claims, are patentably distinct from the Gilliland et al. patent for at least the following reasons.

A notable feature of the present invention is the ability to accurately estimate toner consumption by assigning a toner consumption value to each pixel based upon its pixel type. See paragraphs 0049 and 0085 of the specification. Possible pixel types include a background pixel, an interior pixel, an edge pixel that is part of a one-pixel-wide object, an edge pixel that is part of a two-pixel-wide object, and an edge pixel that is part of an object more than two pixels wide. See paragraph 0052 of the specification. (It is to be understood, of course, that the scope of the claims are not limited to any particular set of pixel types and that many other pixel types may be used. The embodiment discussed herein is referred to for purposes of illustration only.)

Each pixel type is associated with a toner consumption value, meaning that each pixel type is associated with an amount of toner needed to print a pixel of a particular pixel type. See paragraphs 0049, 0052 and 0053 of the specification. (Applicants note that the phrase “toner consumption value” as used herein is supported by the phrase “digital value” discussed beginning at page 12, line 28 of paragraph 0049.) For instance, printing a background pixel may require no toner and, in this case, would have a toner consumption value reflecting the fact that no toner is used to print such a pixel. Printing an interior pixel may require an amount “X” of toner, an edge pixel belonging to a one-pixel-wide object may require an amount “Y” of toner, an amount “Z” may be required to print an edge pixel belonging to a two-pixel-wide object, etc. As discussed in paragraph 0053 of the specification, any toner consumption value may be associated with any of the pixel types. An advantage of this feature is that an operator can adjust toner consumption values with a high degree of granularity to accurately account for and/or minimize “fringe” field effects and other printing phenomena, as well as differences between individual printers and/or print jobs. See, e.g., paragraph 0089 of the specification.

The above-described feature provides support for newly added independent Claim 16. However, it should be noted that the scope of Claim 16 is not limited to the details of this embodiment, which is referred to for illustration purposes only. Claim 16 requires a method of estimating toner consumption of a digital image when printed, the digital image including a plurality of pixels. The

method includes the step of determining a pixel type from a plurality of pixel types for each of the plurality of the pixels. The plurality of pixel types includes a background pixel, an interior pixel, a first type of edge pixel, and a second type of edge pixel. The method also includes the step of assigning a toner consumption value to each of the plurality of pixels based at least upon each pixel's determined pixel type. Additionally, the method includes the steps of adding at least the toner consumption values of each of the plurality of pixels to arrive at a sum, and estimating toner usage based at least upon the sum.

In contrast to Claim 16, the Gilliland et al. patent is understood to estimate toner consumption by calculating pixel counts for image areas, weighting the pixel counts based upon what type of image area the pixel count is associated with, such as a solid image area, a line image area, or a halftone or greyscale image area, and then summing the weighted pixel counts. See col.1, lines 17-32 and col. 1, lines 46-65. The image areas are identified as solid image areas, line image areas, etc., by counting the frequency of print/no print transitions (i.e., on/off transitions) in the area in question. See col. 5, lines 15-24 and col.1, lines 28-32.

The Gilliland et al. patent is not understood to teach or suggest estimating toner consumption by determining a pixel type from a plurality of pixel types for each of a plurality of pixels, assigning a toner consumption value to each of the plurality of pixels based at least upon each pixel's determined pixel type, and adding at least the toner consumption values of each of the plurality of pixels, as required by Claim 16. In addition, Applicants have not found anything in the Gilliland et al. patent that teaches or suggests a plurality of pixel types that include a background pixel, an interior pixel, a first type of edge pixel, and a second type of edge pixel. In other words, even if the Gilliland et al. patent is deemed to disclose assigning a toner consumption value to each pixel based at least upon its pixel type, which Applicants submit is not the case, nothing has been found in the Gilliland et al. patent that teaches or suggests the pixel types recited in Claim 16. An advantage of having these pixel types is that an operator is provided with a high degree of accuracy for estimating toner consumption.

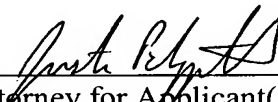
For at least the above-discussed reasons, Applicants respectfully submit that independent Claim 16 is patentable over the Gilliland et al. patent.

Accordingly, withdrawal of the Section 102(b) rejections is respectfully requested.

Independent Claim 20 is an apparatus claim that corresponds to method Claim 16 and is believed to be patentable for at least the same reasons as discussed above. The other claims in this application depend from one or another of the independent claims discussed above and, therefore, are submitted to be patentable for at least the same reasons. Since each dependent claim also is deemed to define an additional aspect of the invention, individual consideration or reconsideration, as the case may be, of the patentability of each claim on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, Applicants respectfully request favorable reconsideration and the allowance of the present application.

Respectfully submitted,



Attorney for Applicant(s)
Registration No. 52,118

Justin D. Petruzzelli/d-n
Rochester, NY 14650
Telephone: 585-726-7522
Facsimile: 585-477-4646

If the Examiner is unable to reach the Applicant(s) Attorney at the telephone number provided, the Examiner is requested to communicate with Eastman Kodak Company Patent Operations at (585) 477-4656.